



China and Europe towards
Cooperation in Personalised Medicine

Mapping of Personalised Medicine Initiatives in China and Identification of gaps and needs for better fostering integration of China in ICPeMed

Within the Sino-EU PerMed project a mapping of patents, scientific articles and funding programmes that are relatable to Personalised Medicine (PM) approaches in China and in Europe had been performed, with the aim to understand the current research & innovation & funding landscape of PM in EU and China, and to assess the level of collaboration between the two Regions from 2010 to 2020.

The mapping was coordinated by the project partner Toscana Life Science (TLS). They have been supported by an external IT provider, specialised in AI methods for business intelligence.

The mapping started with the identification of the definitions of PM commonly accepted by the scientific community from which we extrapolated a set of keywords, functions, expressions and concepts, of the overall scopes and characteristics of PM. First of all, a patentometric and bibliometric mapping was carried out.

Patents: Using data provided by PatStat service of the European Patent Office Database and a series of tools and proprietary database, TLS have been able to: 1) identify patent applications related to PM 2) identify main technological players in PM globally, and at EU and China level 3) set and track the terms of collaboration in the technological field between Chinese and European players (co-assigned and collaboration patents) 4) map the main technological areas of collaboration and the entities which are collaborating on PM.

Scientific Publications: to map the scientific publications relatable to PM we have used the scientific documents within the PubMed database in order to assess the global trends in PM and establish the state of art of scientific collaboration between Europe and China on PM. The main objectives were to 1) identify publications related to PM globally 2) identify the main scientific players in the field of PM in Europe and China 3) set the terms of scientific collaboration and identify the level of collaboration between EU and China.

Funding Programmes: we have adopted an integrated approach to map the funding schemes dedicated to PM in EU and China.

For the EU, our work was based on a database created by ICPeMed which gathers the funding information of the main national and regional funding agencies in Europe. The access to such data provided an extensive overview of the funding activities in the EU.

As for the mapping of funding programmes in China, we have sought a twofold line of action: first we shared a survey with the Chinese stakeholders identified within the SINO-EU PerMed and IC2perMed projects; this approach led to a response rate that was not sufficient to carry out any meaningful statistics.

For this reason, we carried out a desk research to better understand the level of commitment of China, in terms of budget, to funding projects/activities that are relatable to PM approaches.

The main results of the mapping can be summarised as followed. Research and technology in PM is a growing trend globally.

As for patents on PM, current levels of collaboration are not yet optimal also in consideration of ethical, legislative and policy differences between Europe and China which may slow down activities.

It is important to note that some research and technology which is carried out within the umbrella of Traditional Chinese Medicine (TCM) in China, actually refers to PM. Therefore, TCM is an aspect to be leveraged to increase the collaboration between the two regions on PM.

Collaboration on scientific literature is more promising with several thousand research institutions already publishing jointly. Oncology is the field where most collaboration is happening both for patents and papers.

The Sino-EU PerMed consortium gathered all the patents and scientific document mapped in an online database, that will be updated every 24 months and that will be accessible by the public in the next future.

Concerning the funding programmes, the increasing interest has been confirmed by a constant investment on PM in both EU and China in the past decade, although joint research and innovation projects are still at the stake.

TLS: Toscana Life Sciences Foundation is a non-profit organisation founded in 2005 by a group of public and private institutions in Tuscany (Italy) to support research activities in life sciences, developing a wide range of projects from basic research to industrial application. TLS operates in the sector with know-how, expertise and technology support, with particular attention to the protection of intellectual property, business development and support to the company start-up process.
<https://www.toscanalifesciences.org/en/>

If you want to get more information on the mapping activity please get in contact with Gianni D'Errico: g.derrico@toscanalifesciences.org